

In the Claims

Claim 1 (currently amended): A process for the simultaneous production of xylitol and ethanol from a hydrolyzed lignocellulose-containing material, comprising providing a starting material of the hydrolyzed lignocellulose-containing material, comprising xylose and ~~hexose; said hexose comprising~~ glucose in aqueous solution, wherein xylose content is 50-300 g/l;

fermenting said starting material with a yeast strain which is capable of converting xylose to xylitol and hexose present to ethanol to form a fermented product comprising xylitol, ethanol and yeast, wherein during fermentation ~~over about 50% of~~ at least 50% of the xylose in the starting material is converted to xylitol and at least a portion of the glucose in the starting material is converted to ethanol and at least 20 g/l of ethanol is produced in the fermentation solution;

recovering the resulting ethanol by distillation; and
recovering xylitol by chromatographic separation.

Claim 2 (cancelled)

Claim 3 (previously amended): The process according to Claim 1, wherein said lignocellulose-containing material is birch or grain hulls.

Claim 4 (cancelled)

Claim 5 (previously amended): The process according to Claim 1, further comprising crystallizing pure xylitol.

Claim 6 (previously amended): The process according to Claim 1, wherein the yeast cells are removed prior or subsequent to the distillation.

Claim 7 (previously amended): The process according to Claim 1 wherein the yeast strain is of the genus *Candida* or *Debaryomyces*.

Claim 8 (previously amended): The process according to Claim 1, wherein the yeast is a *Candida tropicalis* species.

Claim 9 (previously amended): The process according to Claim 1, wherein the yeast is of the species *Debaryomyces hansenii*.

Claim 10 (cancelled)

Claim 11 (previously amended): The process according to Claim 1, wherein the hydrolyzed lignocellulose-containing material is hydrolyzed by steam explosion and enzymatic hydrolysis.

Claim 12 (previously amended): The process according to Claim 1, wherein the chromatographic separation is carried out with a strong cation-exchanging resin as a stationary phase.

Claim 13 (previously amended): The process according to Claim 1 wherein the fermentation is carried out at a pH of about 4 – 7.

Claim 14 (Cancelled)

Claim 15 (previously added): The process according to claim 8, wherein the yeast is *Candida tropicalis* ATCC 9968.

Claim 16 (previously added): The process according to Claim 13, wherein the fermentation is carried out at a pH of about 5.7 and at a temperature of about 25 - 35°C.

Claims 17-18 (Cancelled)

Claim 19 (previously amended): The process according to claim 1, wherein hydrolysis is carried out by the process selected from the group consisting of acid hydrolysis, enzymatic hydrolysis or combinations thereof.

Claim 20 (previously amended): The process according to claim 19, wherein hydrolysis is carried out by acid hydrolysis.

Claim 21 (previously amended): The process according to Claim 1 wherein the lignocellulose-containing material is treated by steam explosion followed by hydrolysis.

Claim 22 (Cancelled)

Claim 23. (currently amended): A process for the simultaneous production of xylitol and ethanol from a hydrolyzed lignocellulose-containing material, wherein the lignocellulose-containing material is selected from the group consisting of softwood, birch, beech, poplar, alder, plants, plant constituents, straw, hulls of wheat, corn, oat, barley, corn cobs, corn stems, nutshells, bagasse, cottonseed bran, wood chips, sawdust, sulphite spent liquor from woodpulp processing, waste from paper processing, and waste from woodpulp processing, comprising:

providing a starting material of the hydrolyzed lignocellulose-containing material comprising xylose and hexose; ~~said hexose comprising~~ glucose in aqueous solution, wherein xylose content is 50-300 g/l;

fermenting said starting material to produce a fermented solution with a yeast capable of converting xylose present in the starting material to xylitol and glucose ~~free hexose~~ present in the starting material to ethanol, said yeast selected from the group consisting of a yeast of the genera *Candida*, *Pichia*, *Pachysolen*, and *Debaryomyces*, said fermenting comprising reducing said xylose to xylitol and ~~reducing~~ said glucose to ethanol, and said fermented solution comprising xylitol, ethanol, and spent yeast; wherein

during fermentation ~~over about 50%~~ at least 50% of the xylose in the starting material is converted to xylitol ~~and a portion of the~~ glucose in the starting material is converted to ethanol and at least 20 g/l of ethanol is produced into the fermentation solution;

separating a substantial portion of said spent yeast from said fermented solution to produce a substantially clarified solution comprising ethanol and xylitol, said clarified solution comprising substantially less spent yeast by weight on a dry solids (substance) basis than said spent yeast in said fermented solution, and said separating comprising at least one separating method selected from group consisting of filtration, centrifugation and decanting;

recovering ethanol by distillation;

recovering xylitol by chromatographic separation; and

crystallizing said xylitol to produce xylitol crystals.

Claim 24 (previously amended): A method according to Claim 23 wherein hydrolysis comprises at least one of the following: i) prehydrolysis of said lignocellulose-containing material by steam explosion of said lignocellulose-containing material and enzymatic hydrolysis of said lignocellulose-containing material with enzymes having a cellulolytic and xylanolytic activity to hydrolyze said lignocellulose-containing material; and ii) acid hydrolysis of said lignocellulose-containing material.

Claim 25 (previously added): A method according to Claim 23 including removing solids comprising lignin from said solution.

Claim 26 (previously amended): A method according to Claim 23 wherein said yeast is selected from the group consisting of genera *Candida tropicalis* strain having an accession number ATCC 9968, and *Debaryomyces hansenii*.

Claim 27 (previously added): A method according to Claim 23 wherein fermenting occurs at a temperature ranging from about 10 to about 45 degrees C at a pH ranging from 4 to 7 with a yeast concentration of about 1 to about 20 g of dry yeast per

liter of solution having a xylose content of about 50 to about 300 g/l for about 24 to about 72 hours in the presence of nutrients.

Claim 28 (previously amended): A method according to Claim 23 wherein said crystallizing is selected from the group consisting of cooling crystallizing and evaporation crystallizing.

Claim 29 (previously added): A method according to Claim 23 wherein said xylitol crystals are separated by centrifugation and washed with water to produce substantially pure crystalline xylitol.

Claim 30 (previously amended): A method according to Claim 23 wherein:
said hexose in said xylose-containing solution further comprises arabinose.

Claim 31 (currently amended): A process for the simultaneous production of xylitol and ethanol from a starting material of lignocellulose-containing material comprising xylose, comprising the steps of:

partially hydrolyzing said lignocellulose-containing material;

extracting said partially hydrolyzed lignocellulose-containing material with water
~~by steam explosions~~ to produce a xylose containing prehydrolysate and extracted mass;
fermenting ~~a portion of~~ the prehydrolysate to convert at least a portion of the xylose to xylitol; chromatographically separating and crystallizing said xylitol; further hydrolyzing said extracted mass ~~another portion of the prehydrolysate~~ to produce a hydrolysis product comprising xylose and hexose, said hexose comprising glucose; fermenting the hydrolysis product to convert hexoses to ethanol, followed by recovery of the ethanol by distillation; wherein during fermentation at least ~~over about~~ 50% of the xylose in the hydrolysis product is converted to xylitol and ~~a substantial portion of~~ the glucose in the hydrolysis product is converted to ethanol to produce at least 45 g/l of ethanol into the fermentation solution.

Claim 32 (withdrawn)

Claim 33 (withdrawn)

Claim 34 (withdrawn)